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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,044	02/04/2004	Yu-Min Chang	ALIP0037USA	2043
27765 7590 06/04/2007 NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION P.O. BOX 506 MERRIFIELD, VA 22116			EXAMINER SAUNDERS JR, JOSEPH	
			ART UNIT 2615	PAPER NUMBER
			NOTIFICATION DATE 06/04/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/708,044	Applicant(s) CHANG, YU-MIN	
	Examiner Joseph Saunders	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial office action based on the application filed February 4, 2004.

Claims 1 – 7 are currently pending and considered below.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The terms “anteriorly” and “posteriorly” in claims 2 and 3 are relative terms which renders the claims indefinite. The terms “anteriorly” and “posteriorly” is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear as to whether “anteriorly” and “posteriorly” should be defined in the context of the order of events, i.e. “before” and “after”, or if the terms “anteriorly” and “posteriorly” refer to sections of a bit stream. The examiner will interpret the term “outputting” preceding the terms to mean “shifted” and the terms “anteriorly” and “posteriorly” themselves to refer to sections of the bit stream, and therefore “anteriorly” will refer to a section containing a number of the most significant data bits and the term “posteriorly” will refer to a section containing a number of the least significant bits. Appropriate clarification and correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 – 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Oxford (US 6,405,092 B1), hereinafter Oxford.

Claim 1: Oxford discloses a method of adjusting digital audio signals, which comprises: altering data bits of the digital audio signals by right-shifting the data bits of the digital audio signals. ("By shifting the entire audio "word" in one direction or the other, the present invention effects an amplitude change without modifying the actual PCM-encoded data word itself." The shift register shifts the PCM data a single bit right to provide an audio signal attenuation," Column 2 Lines 36 – 44.)

Claim 2: Oxford discloses the method of claim 1 wherein when the digital audio signals are fading out, a number of bits of the data bits is right-shifted, and a number of bits of the data bits of the digital audio signals outputted posteriorly is equal to or greater than a number of bits of the data bits outputted anteriorly. ("By shifting the entire audio "word" in one direction or the other, the present invention effects an amplitude change without modifying the actual PCM-encoded data word itself." "The shift register shifts the PCM

data a single bit right to provide an audio signal attenuation," Column 2 Lines 36 – 44.)

Claim 3: Oxford discloses the method of claim 1 wherein when the digital audio signals are fading in, a number of bits of the data bits is right-shifted, and a number of bits of the data bits of the digital audio signals outputted anteriorly is equal to or greater than a number of bits of the data bits outputted posteriorly ("By shifting the entire audio "word" in one direction or the other, the present invention effects an amplitude change without modifying the actual PCM-encoded data word itself." "The shift register shifts the PCM data a single bit to the left to provide an audio signal boost," Column 2 Lines 36 – 44. Therefore, as viewed with respect to the audio "word" the audio bits are "right-shifted" but to a lesser degree than the previous state).

Claim 4: Oxford discloses the method of claim 1 wherein the digital audio signals are pulse-code modulation (PCM) signals (Figure 2).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oxford in view of Christopher (4,731,851), hereinafter Christopher.

Claim 5: Oxford discloses a digital audio system capable of fading in and fading out digital audio signals (Figures 2 and 3), the digital audio system comprising: a register for storing data bits of the digital audio signals (shift register 320); a multiplexer (mux 342) having a plurality of input ends (lines 321 and 322), a selection end (control signal on line 335), and an output end (line entering gate 345), the input end being connected to the register for selecting to output the data bits of the digital audio signals stored in the register (lines 321 and 322 connect register 320 to mux 342); a shift controller (timing and control block 330), connected to the selection end of the multiplexer (connected by control signal line 335), for controlling the multiplexer to output corresponding bits in accordance with a number of bits of the data bits to be right-shifted ("The timing and control block 330 further provides control signals to effect different weighting of the incoming PCM data. The PCM data responsive to the control signals on lines 335, 336, 337, 338, and 339 and the combination logic of mux 342 with gate 345, gate 347, and mux 344 with gate 349 provides inputs to serial adder 352, serial adder 354, and serial adder 356. The chain of serial adders are controlled by the signal lines 335, 336, 337, 338, and 339, resulting in a selective summation of combinations of various bit shifted versions of the PCM data that result in different logarithmic weightings other than +/-6 dB," Column 4 Lines 46 – 57. "The shift register shifts the PCM data a single bit right to provide an audio signal attenuation," Column 2 Lines 36 – 44.). Oxford does not disclose a digital to analog converter, connected to the output end of the multiplexer, for converting the digital audio signals outputted by the multiplexer into analog audio signals. However, it is well known in the art to include digital to analog converter before

outputting to a speaker. Christopher who discloses a similar digital signal gain control circuitry for varying digital signals in 6 dB steps illustrates this well known placement of a DAC 22 after the digital volume control 16 and before the speaker 26 (Figure 1). Since the manipulation of data is being done digitally it would have been obvious to one of ordinary skill in the art at the time of the invention to include a digital to analog converter as disclosed by Christopher after circuit 200 of Oxford and therefore connected to the output end of the mux to convert the digital PCM audio output data stream into an analog stream for output by a speaker.

Claim 6: Oxford and Christopher disclose the digital audio system of claim 5, and Oxford further discloses wherein the digital audio system further comprises a fading indicator connected to the shift controller for outputting the number of bits of the data bits to be right-shifted to the shift controller. ("This arithmetic shifting of the data in scaling register 360 is accomplished by adjusting the timing of the signal lines 365 and 375 from the timing and control block 330," Column 5 Lines 44 – 57. Therefore, since the timing and control block 330 controls the shifting then input lines 331, 332, and 333 provides the indication to the timing and control block 330. "The timing and control block 330 includes input control signals master clock on line 331, and serial data in ready (S_DATA IN RDY) on line 332, and serial data out request (S_DATA OUT RQ) on line 333," Column 4 Lines 31 – 34.)

Claim 7: Oxford and Christopher disclose the digital audio system of claim 5, and


Oxford further discloses wherein the digital audio signals are pulse-code modulation (PCM) signals (Figure 2).


Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


JS
May 23, 2007


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SUPERVISORY PATENT EXAMINER